Trend Study 19A-3-97

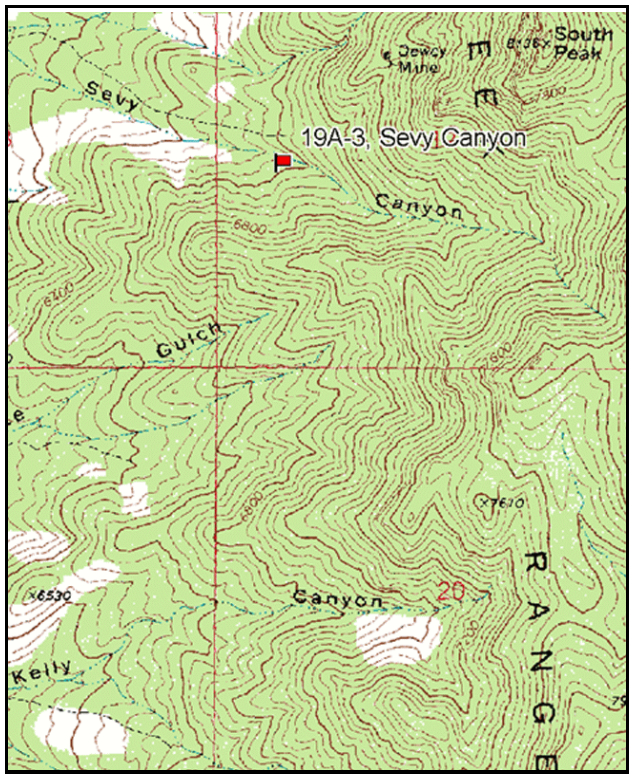
Study site name: Sevy Canyon Vegetation type: Big Sagebrush-Grass

Compass bearing: frequency baseline 276 degrees magnetic (Line 3-4 @ 354°M).

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

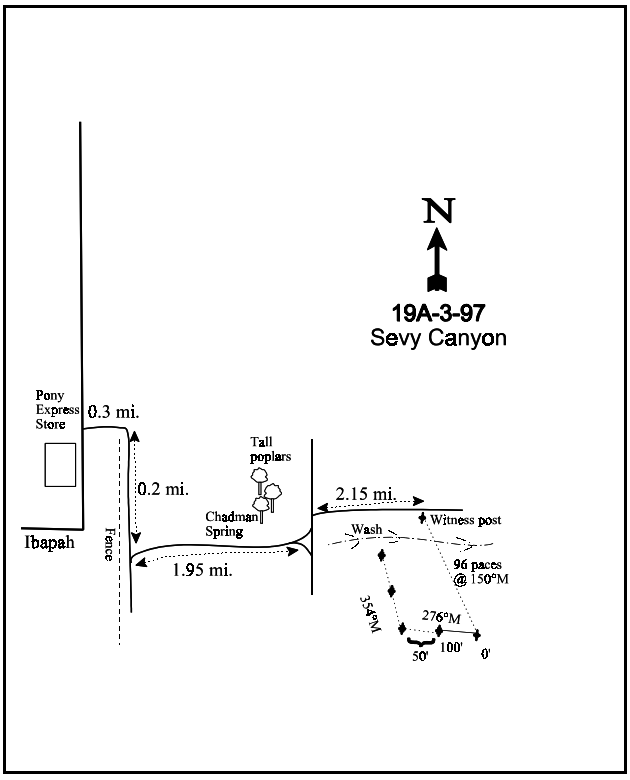
LOCATION DESCRIPTION

From The Pony Express store in Ibapah, proceed less than 0.1 miles north to the first road to the east. Turn right and proceed east for 0.30 miles to another intersection. Turn right and head south for 0.20 miles to another intersection. Turn left and proceed east for 1.95 miles toward Chadman Spring. Just past Chadman Spring the road comes to a "Y". Stay to the left, then make a quick right. Proceed 2.15 miles up Sevy Canyon to a small rock pile with a witness post on the right side of the road. From the rock pile, the 0-foot baseline stake is located 96 paces away at an azimuth of 150 degrees magnetic. The study is marked by green steel "T" fenceposts approximately 12 to 18 inches in height. A red browse tag, number 3933, is attached to the 0-foot baseline stake.



Map Name: Ibapah

Township 9S , Range 18W , Section 17



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4436371 N 251933 E

DISCUSSION

Sevy Canyon - Trend Study No. 19A-3

***SUSPENDED - This site was suspended in 2002 upon request of the biologist. The site lies within a BLM wilderness study area and access to the site has been restricted. The site was surveyed by the project leader and was noted as being poor. The site narrative and data tables are included from the 1997 report.

The Sevy Canyon trend study is located on the west side of the Deep Creek Mountains within deer winter range. Elevation is approximately 6,520 feet on a 35% to 40% northwest facing slope. Animal use is primarily from wintering deer and domestic sheep. Deer pellet groups occur only occasionally. The study is located in a sagebrush-grass opening surrounded by pinyon-juniper woodland. The greatly increased sample size utilized in 1997 extended the study into part of the surrounding pinyon-juniper woodland. Chapman Spring is about three miles to the east and may be the closest water source.

Soils are of the Shontz type, which are characteristically very gravelly and rocky throughout the soil profile. Textural and chemical analysis indicates soils to be a loam with a neutral pH (7.3). Effective rooting depth is estimated to be 15 inches. Average soil temperature was 53.6°F at a depth of 15 inches in 1997. Phosphorous levels in the soil profile measured 5.6 ppm, which may be limiting to vegetative growth and development as 10 ppm is thought to be the minimum needed for normal plant development. The soil becomes progressively more shallow down the slope towards a wash. Signs of slight erosion are present throughout the sagebrush-grass area, while soil under the pinyon-juniper type is much more eroded and rocky.

The key browse species on this site are black sagebrush and Wyoming big sagebrush. Black sagebrush density has greatly fluctuated since the initial estimate of 8,666 plants/acre in 1983. Utilization was moderate to heavy in 1983 with a mostly mature age structure. In 1989, many more young and decadent plants were encountered increasing the density estimate to 13,866 plants/acre. Utilization was mostly light but there was a higher percentage of plants classified with poor vigor. With the greatly increased sample size used in 1997, the density estimate declined to 4,320 plants/acre. Utilization was light, but again, a larger percent of the population was classified in poor vigor. The percentage of young plants in the population declined, while the percentage of decadent plants increased to 50%, with 44% of these plants classified as dying. There is a consistent increase in the percent of the population classified as decadent. Percent decadency has increased from 15% in 1983, to 29% in 1989, peaking at 50% in 1997. The dead to live ratio was estimated to be 1:4 in 1997. Wyoming sagebrush had an estimated density of 740 plants/acre in 1997. This is similar to the 1989 estimate of 666 plants/acre. It was reported in 1989 that some of the Wyoming big sagebrush had a moth infestation which would account for the apparent stress in the population with 60% of the plants encountered classified as decadent. The proportion of the population with moderate utilization steadily declined from 100% in 1983 to only 11% in 1997. The dead to live ratio in 1997 was 1:2.

Narrowleaf low rabbitbrush, slenderbush eriogonum, and broom snakeweed are scattered throughout the site in low densities. In 1997, point-center quarter data estimated 69 Utah juniper trees/acre and 313 single-leaf pinyon trees/acre. The Utah juniper trees had an average diameter of 4.5 inches and the single-leaf pinyon trees averaged three inches in diameter. The Utah juniper and single-leaf pinyon have the potential to eventually dominate the sagebrush-grass opening.

Perennial grass sum of nested frequency has stayed nearly the same over all years. There are some slight changes in bluebunch wheatgrass and Sandberg bluegrass frequency, but they are not significant. Nested frequency for bottlebrush squirreltail has significantly declined since 1989. Currently, the grasses show little evidence of utilization and vigor is good.

Forbs are moderately abundant with a decrease in sum of nested frequency for perennials since 1989. The current sum of nested frequency is similar to that of 1983. Forb utilization is light. The most abundant species provide only minute amounts of forage. They include peavine, Hoods phlox, and longleaf phlox. Hooker balsamroot, although sampled in 1983 and 1989, was not encountered in 1997.

1983 APPARENT TREND ASSESSMENT

Soil trend appears stable to declining. Dispersion of ground cover is irregular and large expanses of the soil surface are occupied by rock, erosion pavement, or bare soil. Runoff from these areas has resulted in limited gully formation. Vegetation trend appears stable for the short term but will probably decline over the long term due to encroachment by Utah juniper and single-leaf pinyon.

1989 TREND ASSESSMENT

Soil erosion is inconspicuous, with a decrease in percent bare ground and an increase in percent vegetation, litter, and pavement cover. The soil trend is stable. The black sagebrush and Wyoming big sagebrush populations have increased since 1983. There is an abundance of young black sagebrush plants, and use has declined. Although percent decadence and the percent of plants in poor vigor have increased in the populations of both sagebrush species, the browse trend is stable. The site has a healthy grass and forb understory with a slightly upward herbaceous understory trend. Sum of nested frequency of perennial grasses remained stable, while that of perennial forbs has slightly increased since 1983.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly upward (4)

1997 TREND ASSESSMENT

Vegetation and litter provide adequate soil protection to limit erosion. Some erosion is apparent under the pinyon and juniper trees, but in the sagebrush-grass dominated area, erosion is not as noticeable. Percent rock and pavement cover combined, as well as percent bare ground, are similar to that of 1989. This leads to a stable soil trend. Black sagebrush shows a continual decline in vigor and an increase in decadence. Wyoming big sagebrush also has a relatively high percent decadency and dead to live ratio. The browse trend is downward. Perennial grass sum of nested frequency has changed very little, while perennial forb sum of nested frequency has declined to below the level estimated in 1983. Therefore, herbaceous understory trend is slightly downward.

TREND ASSESSMENT
soil - stable (3)
browse - down (1)
herbaceous understory - slightly downward (2)

HERBACEOUS TRENDS --
Herd unit 19A, Study no: 3

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
G	Agropyron cristatum	-	-	3	-	-	1	.03
G	Agropyron spicatum	119	153	141	48	66	49	6.04
G	Bromus tectorum (a)	-	-	57	-	-	19	.75
G	Oryzopsis hymenoides	4	-	6	2	-	2	.01
G	Poa fendleriana	-	-	8	-	-	3	.04
G	Poa secunda	182	146	170	68	55	65	2.41
G	Sitanion hystrix	$_{b}$22	$_{b}$32	$_{a}$5	11	17	3	.04
Total for Annual Grasses		0	0	57	0	0	19	0.75
Total for Perennial Grasses		327	331	333	129	138	123	8.57
Total for Grasses		327	331	390	129	138	142	9.33
F	Allium spp.	-	-	1	-	-	1	.00
F	Arabis spp.	$_{a}$-	$_{b}$17	$_{b}$14	-	9	7	.06
F	Arenaria fendleri	$_{a}$5	$_{a}$-	$_{b}$34	3	-	16	.27
F	Aster spp.	$_{b}$21	$_{a}$-	$_{a}$-	10	-	-	-
F	Astragalus spp.	-	7	2	-	5	2	.01
F	Balsamorhiza hookeri	$_{a}$6	$_{b}$23	$_{a}$-	4	10	-	-
F	Calochortus nuttallii	3	-	3	3	-	1	.00
F	Castilleja spp.	-	-	2	-	-	1	.00
F	Collinsia parviflora (a)	-	-	24	-	-	13	.06
F	Crepis acuminata	$_{a}$-	$_{b}$7	$_{a}$5	-	7	2	.03
F	Cryptantha spp.	$_{b}$14	$_{b}$15	$_{a}$-	7	8	-	-
F	Delphinium nuttallianum	-	-	1	-	-	1	.00
F	Descurainia spp. (a)	-	-	1	-	-	1	.00
F	Erigeron spp.	-	4	-	-	2	-	-
F	Lathyrus brachycalyx	$_{a}$271	$_{a}$287	$_{b}$242	92	94	87	6.11
F	Machaeranthera canescens	-	-	1	-	-	1	.00
F	Microsteris gracilis (a)	-	-	3	-	-	2	.06
F	Penstemon humilis	-	-	5	-	-	3	.04
F	Phlox hoodii	$_{b}$172	$_{b}$172	$_{a}$100	69	70	43	1.66
F	Phlox longifolia	$_{a}$18	$_{c}$109	$_{b}$58	11	53	27	.31
F	Senecio multilobatus	$_{a}$-	$_{a}$3	$_{b}$17	-	2	10	.07
F	Streptanthus spp.	1	-	-	1	-	-	-
Total for Annual Forbs		0	0	28	0	0	16	0.12
Total for Perennial Forbs		511	644	485	200	260	202	8.61
Total for Forbs		511	644	513	200	260	218	8.74

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 19A, Study no: 3

Type	Species	Strip Frequency '97	Average Cover % '97
B	Artemisia nova	79	9.73
B	Artemisia tridentata wyomingensis	24	1.66
B	Chrysothamnus viscidiflorus stenophyllus	15	.22
B	Eriogonum microthecum	16	.62
B	Gutierrezia sarothrae	1	-
B	Juniperus osteosperma	10	6.08
B	Pinus monophylla	22	8.26
Total for Browse		167	26.61

CANOPY COVER --
Herd unit 19A, Study no: 3

Species	Percent Cover '97
Juniperus osteosperma	4
Pinus monophylla	7

Point-Quarter Tree Data
Herd unit 19A , Study no: 3

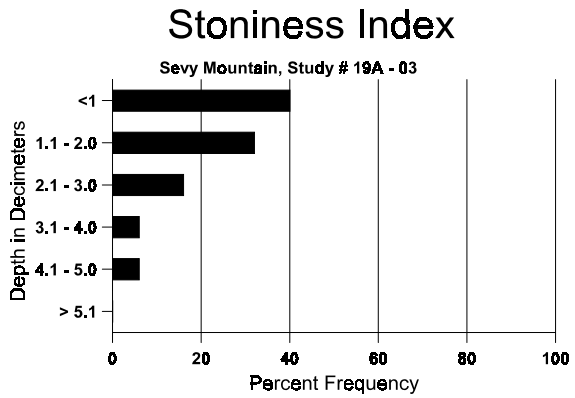
Species	Trees per Acre '97	Average diameter (in) '97
Juniperus osteosperma	69	4.5
Pinus monophylla	313	3.0

BASIC COVER --
Herd unit 19A, Study no: 3

Cover Type	Nested Frequency '97	Average Cover % '83	'89	'97
Vegetation	332	4.00	9.75	46.04
Rock	194	6.00	3.75	6.25
Pavement	264	7.00	13.50	10.66
Litter	385	52.00	56.00	45.03
Cryptogams	170	9.25	5.75	3.87
Bare Ground	194	21.75	11.25	10.01

SOIL ANALYSIS DATA --
Herd Unit 19A, Study no: 3, Sevy Mountain

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
15.0	53.6 (39.2)	7.3	37.3	40.2	22.6	3.4	5.6	108.8	0.8



PELLET GROUP FREQUENCY --
Herd unit 19A, Study no: 3

Type	Quadrat Frequency '97
Rabbit	3
Elk	3
Deer	2

BROWSE CHARACTERISTICS --
Herd unit 19A, Study no: 3

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	1	-	-	1	-	-	2	-	-	-	133			2
	97	8	-	-	2	-	-	-	-	-	10	-	-	-	200			10
Y	83	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	89	33	-	-	4	-	-	-	-	-	33	1	3	-	2466			37
	97	6	-	-	-	-	-	1	-	-	6	-	-	1	140			7
M	83	-	58	50	-	-	-	-	-	-	108	-	-	-	7200	15	25	108
	89	90	11	-	10	-	-	-	-	-	84	12	14	1	7400	13	11	111
	97	94	3	-	4	-	-	1	-	-	102	-	-	-	2040	12	18	102
D	83	-	7	12	-	-	-	-	-	-	12	-	7	-	1266			19
	89	52	4	-	4	-	-	-	-	-	35	15	2	8	4000			60
	97	95	9	-	1	2	-	-	-	-	59	-	1	47	2140			107
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	2	-	-	-	-	-	-	-	-	-	-	-	-	1160			58

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	50%	48%	05%	+38%
'89	07%	00%	13%	-69%
'97	06%	00%	23%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	8666	Dec:		15%
'89	13866			29%
'97	4320			50%

Artemisia tridentata wyomingensis																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	1	-	-	-	-	-	1	-	-	-	66			1
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	83	-	3	-	-	-	-	-	-	-	3	-	-	-	200	26	39	3
	89	3	-	-	-	-	-	-	-	-	3	-	-	-	200	15	17	3
	97	19	-	-	-	-	-	-	-	-	19	-	-	-	380	22	32	19
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	2	4	-	-	-	-	-	-	-	5	-	-	1	400			6
	97	12	2	-	-	2	-	-	-	-	14	-	-	2	320			16
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	420			21

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	100%	00%	00%	+70%
'89	40%	00%	10%	+10%
'97	11%	00%	05%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	200	Dec:		0%
'89	666			60%
'97	740			43%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus stenophyllus																		
Y	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66	12	9	1
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	16	-	-	2	-	-	-	-	-	18	-	-	-	360	14	13	18
D	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	89	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+26%
'89	00%	00%	00%	+30%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	198	Dec:		33%
'89	266			75%
'97	380			0%

Eriogonum microthecum																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	97	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66	14	15	1
	89	6	-	-	2	-	-	-	-	-	8	-	-	-	533	8	6	8
	97	25	-	-	2	-	-	-	-	-	27	-	-	-	540	9	9	27
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	97	1	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+92%
'89	00%	00%	00%	-27%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	66	Dec:		0%
'89	799			17%
'97	580			3%

Gutierrezia sarothrae																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	10	7	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	0	Dec:		-
'89	0			-
'97	20			-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus osteosperma																		
S	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	89	1	-	-	1	-	-	1	-	-	3	-	-	-	200			3
	97	1	-	-	-	-	-	2	-	-	3	-	-	-	60			3
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	97	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66	43	45	1
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	6	-	-	-	-	-	1	-	-	7	-	-	-	140	-	-	7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+ 0%
'89	00%	00%	00%	+67%
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	66	Dec:	-
	'89	66		-
	'97	200		-

Pinus monophylla																		
S	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	89	-	-	-	-	-	-	2	-	-	2	-	-	-	133			2
	97	22	-	-	1	-	-	2	-	-	25	-	-	-	500			25
Y	83	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	89	8	-	-	-	-	-	2	-	-	10	-	-	-	666			10
	97	16	-	-	3	-	-	-	-	-	19	-	-	-	380			19
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66	59	39	1
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	5	-	-	-	-	-	-	-	-	5	-	-	-	100	4	-	5
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+30%
'89	00%	00%	00%	-25%
'97	00%	00%	04%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	466	Dec:	0%
	'89	666		0%
	'97	500		4%